SPECIFICATION AMENDMENTS:

Please replace the paragraph bridging pages 2 and 3 with the following amended paragraph:

--FIG. 1 shows a conventional flat bed scanner 100 with a multi-step scanning function. The scanner 100 includes a carriage 102, which scans a document 106 lying on the scan area 104. If the memory (not shown) of the scanner 100 is inadequate to store the image ~~date~~ data, the carriage 102 is positioned at one of the scan lines, which is called the image merging scan line L1. The process of driving the carriage 102 back to the image merging scan line L1 is described as follows. First, the carriage 102 slows down from the image merging scan line L1 and moves along the scan direction for a distance W, from left to right as the arrow shown in FIG.1. Eventually, the carriage 102 stops at a stopping scan line L2. The distance W is controlled by a step motor (not shown) and thus can be transformed into Y steps. Please note that the slow-down motion of the carriage 102 is unstable and can even shake. Next, the carriage 102 is driven for Y steps from the stopping scan line L2 to the image merging scan line L1 along the direction shown by the arrow in FIG. 1 from right to left. During the motion of returning to the image merging scan line L1, the carriage may also shake.--

Please replace the section entitled "SUMMARY OF THE INVENTION" with the following amended section:

AMENDMENT
Filed April 3, 2006

10/050,717

--It is therefore an object of the invention to provide a scanner, which has a reference pattern to facilitate image merging.

An object of the invention is to provide a flat bed scanner ~~with a reference pattern for merging images~~. The flat bed scanner comprises a scan area for placing a document to be scanned, a carriage for scanning the document to obtain images before and after the carriage stops, and a reference pattern. The reference pattern is positioned at one side of the scan area, wherein the images can be merged precisely by using the carriage to detect the reference pattern.

According to another object of the invention, an automatic document feed (ADF) scanner ~~with a reference pattern for merging images~~ is further disclosed. The ADF scanner comprises a carriage, a reference roller located at an area detectable by the carriage, and a reference pattern rolled up and attached at one end of the reference roller so that the reference pattern rolls along with the reference roller, wherein the carriage scans the document to obtain images before and after the reference roller stops, and the images can be merged precisely by using the carriage to detect the reference pattern.

Still another object of the invention is to provide a method of merging images in a flat bed scanner, the scanner comprising a carriage, a scan area, and a reference pattern located at one side of the scan area. The carriage scans a document to obtain the images before and after the carriage stops. The method of merging images comprises:

(a) detecting two intersect points of an image merging scan line and the reference pattern, and determining the distance therebetween, wherein the distance between the two intersect points is defined as a first interval and a scan line where the carriage positions, posits, while a memory of the scanner is inadequate, is defined as the image merging scan line;

(b) slowing down and moving the carriage in a first direction and stopping at a scan line defined as a first stopping scan line;

(c) moving the carriage in a second direction opposite to the first direction, starting from the first stopping scan line, passing the image merging scan line, slowing down and to a stop at a second stopping scan line;

(d) moving the carriage in the first direction from the second stopping scan line, wherein a stable scan line is where the carriage starts to move stably;

(e) detecting two intersect points of the stable scan line and the reference pattern, and determining the distance therebetween, wherein the distance between the two said intersect points is defined as a second interval, and determining the migration distance by the first interval and the second interval, using a logic operation; and

(f) moving the carriage from the stable scan line along the first direction and continuing the scanning after the carriage reaches the image merging scan line.--